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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,796	03/06/2002	Yuan-Liang Li	219.40775X00	6702

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EXAMINER

MCCAMEY, ANN M

ART UNIT	PAPER NUMBER
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2833

DATE MAILED: 01/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/090,796

Applicant(s)

LI, YUAN-LIANG

Examiner

Ann M McCamey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Drawings

Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim(s) are narrative in form and replete with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device.

Claims 1 and 9 recite the limitation of "a mechanical support disposable between the electrical components to provide support thereto." It is unclear how the support is *between* the electrical components, and how it is providing support to the electrical components. Also, it is generally vague and unclear how the connector comprises a mechanical support.

As the claims read currently, any rigid piece of conductive material would anticipate the claims, since limitations such as "providable," "engageable," "mountable," "disposable," etc. only require the ability to so perform, and do not constitute a positive limitations.

Please check for inconsistencies in language within the claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-38 are rejected under 35 U.S.C. 102(e) as being anticipated by
Figueroa et al. (US 6,388,207).

Regarding claims 1 and 9, Figueroa et al. disclose a shunt/mechanical connector comprising: a shunt electrical conduction path for predetermined electrical current such that the predetermined electrical current does not pass through grid array connectors of grid-array-mounted electrical components; and a mechanical support disposable between the electrical components to provide support thereto (column 8, lines 30-35).

Regarding claims 2 and 10, Figueroa et al. disclose the shunt electrical conduction path has a cross-sectional area greater than that of any one of the grid array connectors, so as to provide a lower resistance shunt path for current than the grid array connectors.

Regarding claims 3 and 11, Figueroa et al. disclose the shunt electrical conduction path has at least one contact to electrically contact at least one of a pad, a

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via, and predefined PCB conductive patterns electrically connected to a power or ground plane of at least one of the electrical components.

Regarding claims 4 and 12, Figueroa et al. disclose the shunt /mechanical connector is providable in a location in at least one of: a predetermined reserved component area of the grid array arrangements; within a grid array connector area having the plurality of grid array connectors; outside of the grid array connector area, but through any socket assembly providing the plurality of grid array connectors; and, outside of any socket assembly.

Regarding claims 5 and 13, Figueroa et al. disclose the shunt/mechanical connector is substantially made of at least one of rigid electrically conductive sections formed as one of a molded, stamped, etched, extruded and deposited arrangement, and is capable of withstanding temperatures of at least a normal electrical component operation of the electrical components.

Regarding claims 6 and 14, Figueroa et al. disclose the shunt/mechanical connector arrangement being one of provided separately from, and integrated with one of, the electrical components.

Regarding claims 7 and 15, Figueroa et al. disclose one of the electrical components is one of: a motherboard, a printed circuit board (PCB); and a receiving substrate, and another of the electrical components is one of: a semiconductor package; a semiconductor package having an interposer-, and an interfacing substrate.

Regarding claims 8 and 16, Figueroa et al. disclose a grid array mount being one of: a bump/ball grid array; a micro BGA; a pin grid array; and a micro pin grid array.

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Regarding claims 17 and 28, Figueroa et al. disclose shunt/support device comprising a shunt/support member disposable between electrical components mountable together with opposing grid array arrangements having a plurality of grid array connectors, the shunt/support member engageable with the electrical components to at least one of mechanically support and secure the electrical components with respect to each other, and having at least one electrical conduction path electrically connectable so as to shunt more than a majority portion of at least one predetermined type of current flowable between the electrical components, from flowing through ones of the plurality of grid array connectors (column 8, lines 30-35).

Regarding claims 18 and 29, Figueroa et al. disclose the shunt/support member being at least one shunt/support post disposable between the electrical components.

Regarding claims 19 and 30, Figueroa et al. disclose the shunt/support member disposable to shunt substantially all of the at least one predetermined type of current.

Regarding claims 20 and 31, Figueroa et al. disclose the shunt/support member being capable to shunt the more than a majority portion of the at least one predetermined type of current, by the at least one electrical conduction path having a lower electrical resistance for current flowable between the electrical components through the shunt/support device, in comparison to an electrical resistance through the ones of the plurality of grid array connectors.

Regarding claims 21 and 32, Figueroa et al. disclose the at least one electrical conduction path having the lower electrical resistance by at least one of- having a current-carrying cross-sectional area measured perpendicularly across an electrical

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current flow direction therethrough which is greater than a corresponding cross-sectional area of the ones of the plurality of grid array connectors; and being constructed of material which is lower in electrical resistance than an electrical resistance of a material of the ones of the plurality of grid array connectors.

Regarding claims 22 and 33, Figueroa et al. disclose the at least one predetermined type of current being one of a power supply current, a grounding current, and a high-voltage current.

Regarding claims 23 and 34, Figueroa et al. disclose the shunt/support member being securable with the electrical components using at least one of solder, welding, at least one fastener, and glue, so as to mechanically secure the electrical components with respect to each other.

Regarding claims 24 and 35, Figueroa et al. disclose being disposable in a location in at least one of: a predetermined reserved component area of the grid array arrangements; within a grid array connector area having the plurality of grid array connectors; outside of the grid array connector area, but through any socket assembly providing the plurality of grid array connectors; and, outside of any socket assembly.

Regarding claims 25 and 36, Figueroa et al. disclose where one of the electrical components is one of: a motherboard, a printed circuit board (PCB); and a receiving substrate, and another of the electrical components is one of: a semiconductor package; a semiconductor package having an interposer; and an interfacing substrate.

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Regarding claims 26 and 37, Figueroa et al. disclose the grid array arrangements being one of: a bump/ball grid array; a micro BGA; a pin grid array; and a micro pin grid array.

Regarding claims 27 and 38, Figueroa et al. disclose the shunt/support member comprises aligner components to substantially align the opposing conductive grid-array patterns of the electrical components during mounting together thereof.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann M McCamey whose telephone number is (703) 305-3422. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on (703) 308-2319. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

AMM
January 10, 2003


RENEE LUEBKE
PRIMARY EXAMINER